What is claimed is:

1. A sheathed-element glow plug with ionic-current sensor, comprising a housing (3) and a rod-shaped heating element (5) arranged in a concentric bore hole of the housing, the heating element (5) having at least one insulating layer (11) as well as a first lead layer (7) and a second lead layer (9), the first lead layer (7) and the second lead layer (9) being connected via a bar (8) at end (6) of the heating element (5) on the combustion chamber side, the first and second lead layers (7, 9) and the bar (8) being made of electroconductive ceramic material, and the insulating layer (11) being made of electrically insulating ceramic material,wherein the heating element (5) has a first electrode (33) for detecting ionic current and a second electrode (33') for detecting ionic current which are embedded in the insulating layer (11) or are applied on the insulating layer (11).

2. The sheathed-element glow plug as recited in Claim 1,wherein the first electrode (33) for detecting ionic current and the second electrode (33') for detecting ionic current are made of metallic material, preferably platinum.

3. The sheathed-element glow plug as recited in Claim 1,wherein the first electrode (33) for detecting ionic current and the second electrode (33') for detecting ionic current are made of electroconductive ceramic material.

4. The sheathed-element glow plug as recited in Claim 1,wherein a first electrical connection (15) and a second electrical connection (17) are provided at the end of the heating element (6) remote from the combustion chamber, the first electrical connection (15) being connected to the end, remote from the combustion chamber, of the first electrode (33) for detecting ionic current, and the second electrical connection (17) being connected to the end, remote from the combustion chamber, of the second electrode (33') for detecting ionic current.

5. The sheathed-element glow plug as recited in Claim 1,wherein the second lead layer (9) is connected to ground via the housing (3) and combustion-chamber seal (13).

6. The sheathed-element glow plug as recited in Claim 1,wherein at the end of the heating element (6)remote from the combustion chamber, a tubular spacer sleeve (27) made of electrically insulating material is arranged within the concentric bore hole of the housing (3).

7. The sheathed-element glow plug as recited in Claim 1,wherein the insulating layer (11), the first lead layer (7), the bar (8) and the second lead layer (9) are made of ceramic composite structures which are obtainable from at least two of the compounds Al_2O_3, $MoSi_2$, Si_3N_4 and Y_2O_3 using a one-step or multi-step sintering process.

8. The sheathed-element glow plug as recited in Claim 1,wherein the insulating layer (11), the first lead layer (7), the bar (8) and the second lead layer (9) are made of a composite precursor ceramic, the matrix material including polysiloxanes, polysilsesquioxanes, polysilanes or polysilazanes which may be doped with boron, nitrogen or aluminum and which were produced by pyrolysis, the filler being formed from at least one of the compounds

Al_2O_3, $MoSi_2$, SiO_2 and SiC.

9. The sheathed-element glow plug as recited in Claim 3,wherein the first electrode (33) for detecting ionic current and the second electrode (33') for detecting ionic current are made of ceramic composite structures which are obtainable from at least two of the compounds Al_2O_3, $MoSi_2$, Si_3N_4 and Y_2O_3 using a one-step or multi-step sintering process.

10. The sheathed-element glow plug as recited in Claim 3,wherein the first electrode (33) for detecting ionic current and the second electrode (33') for detecting ionic current are made of a composite precursor ceramic, the matrix material including polysiloxanes, polysilsesquioxanes, polysilanes or polysilazanes which may be doped with boron, nitrogen or aluminum and which were produced by pyrolysis, the filler being formed from at least one of the compounds Al_2O_3, $MoSi_2$, SiO_2 and SiC.

11. A method for operating a sheathed-element glow plug having an ionic-current sensor as recited in Claim 1, wherein during a glow phase, an electrical voltage is applied merely to the first and the second lead layers (7, 9), and after ending the glow phase, an electrical voltage is applied merely to the first electrode (33) for detecting ionic current and to the second electrode (33') for detecting ionic current.

12. A method for operating a sheathed-element glow plug having an ionic-current sensor as recited in Claim 1, wherein during the glow phase, an electrical voltage is applied both to the first and the second lead layers (7, 9), as well as to the first electrode (33) for detecting ionic current and to the second electrode (33') for detecting ionic current.

13. The method as recited in one of Claims 11 or 12, wherein a voltage having the same potential is applied to the first electrode (33) for detecting ionic current and to the second electrode (33') for detecting ionic current.

14. The method as recited in one of Claims 11 or 12, wherein a voltage having different potential is applied to the first electrode (33) for detecting ionic current and to the second electrode (33') for detecting ionic current.